

REMARKS

Reconsideration and allowance of the present patent application based on the foregoing amendments and following remarks are respectfully requested.

By this Amendment, claims 49, 84 and 117 are amended, claims 1-36, 50-83, 91, 99-115 and 118-125 are cancelled without prejudice or disclaimer to the subject matter therein. Support for the amendments to the claims may be found throughout the original detailed description of the present patent application. For example, support for the amendments to claim 84 may be found, for example, on page 27, lines 21-24 of the present application where it is disclosed that the focal length of the variable focal-length lens is changed. Change of a focal length means a change of a direction of refraction of light at a lens surface, which is a result of light deflecting function. No new matter has been added. Accordingly, after entry of this Amendment, claims 40-42, 48-49, 84, 86, 88, 92-98, 116, 117 and 126 will remain pending in the patent application.

Entry of this Amendment is proper under 37 C.F.R. §1.116 as the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not present any new issues that would require further consideration and/or search as the amendments merely amplify issues discussed throughout the prosecution; (c) do not present any additional claims without cancelling a corresponding number of claims; and (d) place the application in better form for appeal, should an appeal be necessary. Entry of this Amendment is thus respectfully requested.

Claims 77-78, 91 and 99-125 were withdrawn from consideration as being allegedly directed to a non-elected invention. Without taking a position with respect to the merits or substance of this restriction requirement, Applicants have cancelled claims 77-78, 91 and 99-125, thus rendering moot this restriction requirement.

Applicants respectfully note that claim 48 has not been objected to or rejected by the Office Action. Accordingly, it is respectfully submitted that this claim is in condition for allowance. In the event that claim 48 is not allowed in the next communication from the Office, Applicants respectfully submit that the finality of the Office Action is premature and must be withdrawn and that a new, non-final Office Action must be issued setting a new period for reply. (See MPEP §706.07 and 37 C.F.R. § 1.113).

Claims 40, 49, 84, 86 and 93-98 were rejected under 35 U.S.C. §102(b) based on Togino (U.S. Pat. No. 5,513,041). The rejection is respectfully traversed.

Claim 40 is patentable over Togino at least because this claim recites an optical apparatus comprising an optical system that forms a two-dimensional image, wherein, *inter alia*, the variable optical-property mirror has a reflecting surface that is deformable. Togino fails to disclose, teach or suggest an optical apparatus including these features.

Togino discloses a visual display apparatus having an image display device 14 for forming an image for observation, a relay optical system 15 for relaying a real image of the image display device, and an ocular concave reflecting optical system 3 for projecting the real image relayed by the relay optical system as an enlarged image and for reflectively bending a bundle of rays emitted from the image display device. (*See, e.g.*, col. 4, lines 10-18 and FIG. 5 of Togino). The visual display apparatus includes a decentered correcting optical system 8 disposed between the relay optical system 15 and the ocular concave reflecting optical system 3 and having a lens surface decentered with respect to an optical axis formed by the relay optical system. (*See, e.g.*, col. 4, lines 18-24 and FIG. 5 of Togino).

The Examiner refers to col. 6, lines 18-24 of Togino as allegedly disclosing, teaching or suggesting a variable optical-property mirror having a reflecting surface that is deformable, as recited in claim 40. Respectfully, those cited portions of Togino merely discuss the curvature of field produced by the mirror 3. Specifically, those cited portions disclose that “the curvature of field is similarly produced regardless of whether the concave reflecting mirror 3 is formed from an aspherical surface or a toric surface.” However, unlike claim 1, those cited portions do not disclose, teach or suggest that the mirror 3 has a reflecting surface that is deformable.

As known in the art, the curvature of field, which is due to lens aberrations, merely relates to the curve of an image surface formed by a lens in reference to a paraxial image plane. Additional information related to the curvature of field are provided in Exhibit 1 (Eugene Hecht, “OPTICS,” Second Edition, 1990) attached herewith. As explained on page 228 and shown in Expression (6.43) of page 229 of Exhibit 1, the value Δx representing a degree of curve (displacement) depends on the focal length or the surface shape of the lens. The figures shown on page 228 of Exhibit 1 are directed to lenses. However, the Examiner’s attention is directed to page 162 of Exhibit 1 that discusses the field curvature of the mirror and in which it is stated that the properties of a mirror and a lens are similar. Therefore, similarly to a lens, a mirror also has a curvature of field. The degree of curve (displacement) produced by the mirror depends on the curvature of the mirror surface and, in particular, the shape of the mirror surface (aspherical surface, toric surface, etc.). Accordingly, the

description referred to by the Examiner in col. 6, lines 21-24 of Togino merely means that a curvature of field is generated irrespective of the shape (*i.e.*, aspherical or toric) of the reflecting mirror 3. There are no teachings or suggestions in Togino as to a variable optical-property mirror having a reflecting surface that is deformable, as recited in claim 40. Accordingly, Togino cannot anticipate claim 40.

Claims 93-97 are patentable over Togino at least by virtue of their dependency from claim 40 and for the additional features recited therein.

Claim 49 is patentable over Togino for at least similar reasons as provided above for claim 40, and for the features recited therein. Namely, claim 49 is patentable over Togino at least because this claim recites an optical system wherein, *inter alia*, a shape of a reflecting surface of the variable optical-property mirror is deformable. As mentioned previously, Togino fails to disclose, teach or suggest these features.

Claim 84 is patentable over Togino at least because this claim recites an optical device comprising, *inter alia*, a variable optical-property element having a light-deflecting function. Togino fails to disclose, teach or suggest these features.

The Examiner refers to element 14 of Togino as allegedly disclosing, teaching or suggesting the variable optical property element of claim 84. However, unlike claim 84, the element 14 of Togino merely relates to a two-dimensional image display device. (*See, e.g.*, col. 11, lines 7-8 of Togino). Element 14 does not have a light-deflecting function as required by claim 84. Accordingly, Togino cannot anticipate claim 84.

Claim 86 is patentable over Togino at least by virtue of its dependency from claim 84 and for the additional features recited therein.

Claim 98 is patentable over Togino at least by virtue of its dependency from claim 41 and for the additional features recited therein. Claim 41 has not been rejected by the Examiner based on Togino. Thus, claim 98 is allowable. In addition, claim 98 is patentable over Togino at least because this claim recites an optical system comprising, *inter alia*, a variable optical-property element. Togino fails to disclose, teach or suggest these features.

The Examiner refers to mirror 3 of Togino as allegedly disclosing, teaching or suggesting a variable optical-property mirror. However, as noted previously, the concave mirror is not a variable optical mirror. Therefore, claim 98 cannot be anticipated by Togino.

Accordingly, reconsideration and withdrawal of the rejection of claims 40, 49, 84, 86 and 93-98 under 35 U.S.C. §102(b) based on Togino are respectfully requested.

Claims 41, 88, 116 and 117 were rejected under 35 U.S.C. §102(b) based on Gobeli (U.S. Pat. No. 4,932,768). The rejection is respectfully traversed.

Claim 41 is patentable over Gobeli at least because this claim recites an optical system comprising, *inter alia*, a variable optical-property element and a plurality of rotationally asymmetric curved surfaces. Gobeli does not disclose, teach or suggest these features.

Gobeli discloses an optical system including a collimating mirror 68, a focusing mirror 70 and a diffraction grating 72. (*See, e.g.*, FIG. 8 of Gobeli). The collimating mirror 68 and the focusing mirror 70 are toric mirrors. (*See, e.g.*, col. 7, lines 43-45 of Gobeli).

The Examiner refers to the diffraction grating 72 of Gobeli as allegedly disclosing, teaching or suggesting a plurality of rotationally asymmetric curved surfaces. Respectfully, those cited portions do not disclose, teach or suggest these features. In particular, while it may be argued that the surface of diffraction grating 72 defines one rotationally asymmetric surface, which Applicants do not concede, the surface of the diffraction grating clearly does not include a plurality of rotationally asymmetric surfaces, much less a plurality of rotationally asymmetric curved surfaces, as required by claim 41. Thus, claim 41 cannot be anticipated by Gobeli.

Claim 88 is patentable over Gobeli at least by virtue of its dependency from claim 41, and for the additional features recited therein.

Claim 116 is patentable over Gobeli at least because this claim recites an optical system wherein, *inter alia*, the rotationally asymmetric surface defines only one plane of symmetry or no plane of symmetry. Gobeli does not disclose, teach or suggest these features.

The Examiner refers to element 72 of Gobeli as allegedly disclosing, teaching or suggesting a rotationally asymmetric surface that defines only one plane of symmetry or no plane of symmetry. Respectfully, Gobeli is silent as to these features. Gobeli merely discloses a diffraction grating 72 that includes an undulation structure having linearly arranged ridges (and furrows). The undulation structure is symmetric with respect to not only a plane parallel with the extending direction of the ridges but also a plane perpendicular to the extending direction of the ridges. That is, Gobeli merely discloses a rotationally asymmetric surface having two planes of symmetry. Accordingly, for at least this reason, Gobeli cannot anticipate claim 116.

Claim 117 is patentable over Gobeli at least because this claim recites an optical system wherein, *inter alia*, the variable optical-property elements and the optical element are

decentered from one another, and the rotationally asymmetric optical surface is a smooth surface. Gobeli does not disclose, teach or suggest these features.

Specifically, the diffraction grating 72 of Gobeli includes an undulating surface. As such, the rotationally asymmetric optical surface of the diffraction grating 72 of Gobeli is not smooth, as required by claim 117. Accordingly, claim 117 cannot be anticipated by Gobeli.

Accordingly, reconsideration and withdrawal of the rejection of claims 41, 88, 116 and 117 under 35 U.S.C. §102(b) based on Gobeli are respectfully requested.

Claim 126 was rejected under 35 U.S.C. §102(e) based on Nishioka *et al.* (U.S. Pat. No. 6,888,590) (hereinafter "Nishioka"). The rejection is respectfully traversed.

Applicants respectfully submit that the inventor of the subject matter of claim 126 is the same as the one of the same subject matter that is generally disclosed but not claimed in Nishioka. The enclosed declaration under 37 C.F.R. §1.132 clearly establishes that Kimihiko Nishioka is the inventor of the subject matter that is recited in claim 126 of the present application and is also disclosed in Nishioka.

Accordingly, reconsideration and withdrawal of the rejection of claim 126 under 35 U.S.C. §102(e) based on Nishioka are respectfully requested.

Claim 92 was rejected under 35 U.S.C. §103(a) based on Togino in view of Mihara (U.S. Pat. No. 4,948,234). The rejection is respectfully traversed.

Claim 92 is patentable over Togino at least by virtue of its dependency from claim 40 and for the additional features recited therein. Namely, claim 92 is patentable over Togino at least because this claim recites an optical apparatus comprising an optical system that forms a two-dimensional image, wherein, *inter alia*, the variable optical-property mirror has a reflecting surface that is deformable. As mentioned previously, Togino fails to disclose, teach or suggest an optical apparatus including these features.

Mihara fails to remedy the deficiencies of Togino. Mihara merely discloses a zoom lens system but is silent as to a variable optical-property mirror having a reflecting surface that is deformable, as recited in claim 92. Thus, any proper combination of Togino and Mihara cannot result, in any way, in the invention of claim 92.

Furthermore, a proper motivation for combining the teachings of Togino and Mihara has not been established. The alleged motivation, "to provide high aperture ratios and high vari-focal ratios," does not appear to have any relevance either to the claims or to the combination of Togino and Mihara and no evidence in any of the references is provided to

support this conclusion. Thus, in the absence of impermissible hindsight there is no motivation to combine the teachings of Togino and Mihara.

Accordingly, reconsideration and withdrawal of the rejection of claim 92 under 35 U.S.C. §103(a) based on Togino in view of Mihara are respectfully requested.

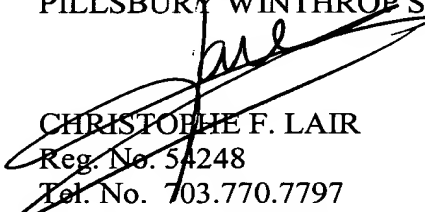
Applicants have addressed the Examiner's rejections and respectfully submit that the application is in condition for allowance. A notice to that effect is earnestly solicited.

If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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Encls: Exhibit 1
Rule 1.132 Declaration